Recent CALIFORNIA DROUGHT

Defining Drought

California's extensive system of water supply infrastructure -- its reservoirs, groundwater basins, and inter-regional conveyance facilities -- mitigates the effect of short-term dry periods for most water users. Defining when a drought begins is a function of drought impacts to water users. Hydrologic conditions constituting a drought for water users in one location may not constitute a drought for water users elsewhere, or for water users having a different water supply. Individual water suppliers may use criteria such as rainfall/runoff, amount of water in storage, or expected supply from a water wholesaler to define their water supply conditions.

Impacts of drought are typically felt first by those most reliant on annual rainfall -- ranchers engaged in dryland grazing, rural residents relying on wells in low-yield rock formations, or small water systems lacking a reliable source. Drought impacts increase with the length of a drought, as carry-over supplies in reservoirs are depleted and water levels in groundwater basins decline. However, unlike earthquakes, fires, or floods, drought onset is slow, allowing time for water suppliers to implement preparedness and response actions to mitigate reductions in normal supplies.

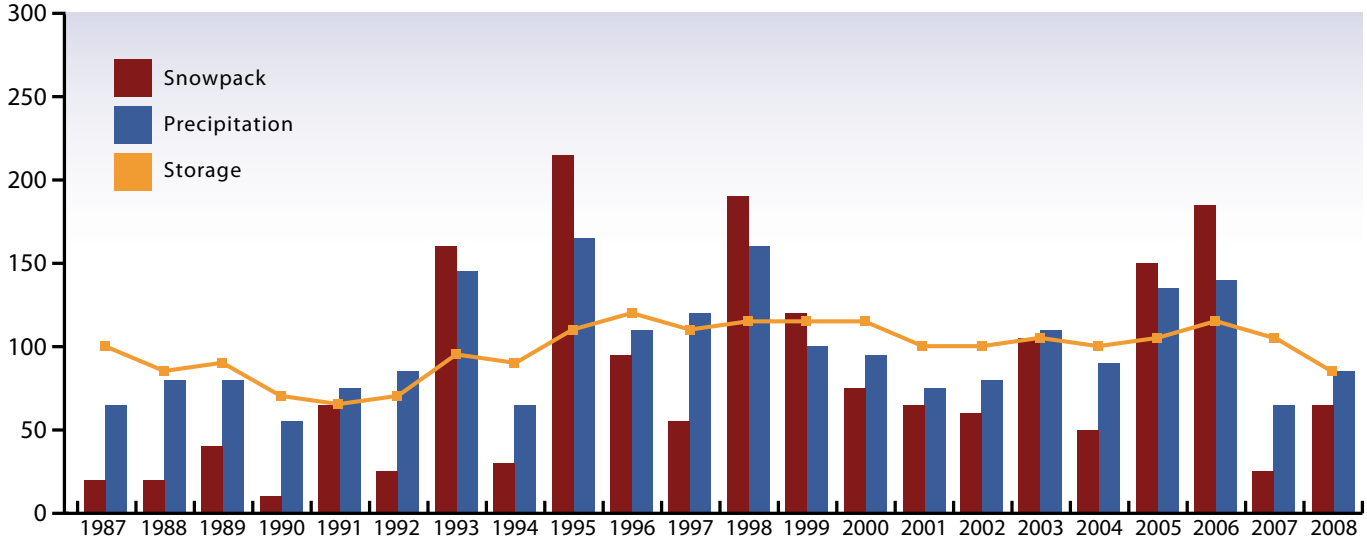
The graphic below illustrates several indicators commonly used to evaluate California water conditions. The percent of average values are determined for measurement sites and reservoirs in each of the State's ten major hydrologic regions. Snowpack is an important indicator of runoff from Sierra Nevada watersheds, the source of much of California's developed water supply.

Current Drought

Water managers remained optimistic following dry year 2007 that 2008 could produce enough snowpack and precipitation to alleviate conditions caused by one dry year. Following an encouraging start with above average snowpack on February 1, 2008, the year ended with the driest spring on record resulting in another dry water year.

Responding to dropping reservoir levels and increasing agricultural water supply uncertainty, Governor Arnold Schwarzenegger declared statewide drought in June 2008 with Executive Order S-06-08. He also issued a Central Valley State of Emergency Proclamation for nine Central Valley counties (Sacramento, San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare and Kern) to address urgent water needs. This is the first time statewide drought has ever been declared in California, and the decision was made in recognition of the serious water supply crisis that is resulting not only from dry conditions, but regulatory restrictions imposed by federal court decisions to protect native fish species.

Percent of average conditions on May 1



Severity of Extreme Droughts in the Sacramento and San Joaquin Valleys

Drought	Sacramento Valley Runoff		San Joaquin Valley Runoff	
Period	(maf/yr)	(% Average 1901-96)	(maf/yr)	(% Average 1906-96)
1929-34	9.8	55	3.3	57
1976-77	6.6	37	1.5	26
1987-92	10.0	56	2.8	47

Past Droughts

Droughts exceeding three years are relatively rare in Northern California, the source of much of the State's developed water supply. The 1929-34 drought established the criteria commonly used in designing storage capacity and yield of large Northern California reservoirs. The table below compares the 1929-34 drought in the Sacramento and San Joaquin Valleys to the 1976-77 and 1987-92 droughts. The driest single year of California's measured hydrologic record was 1977.

California's most recent multi-year statewide drought was 1987-92. In 1991, the driest single year of the 1987-92 drought, 23 of California's 58 counties declared county-wide local states of emergency due to drought. Many of the declarations were prompted by economic impacts associated with loss of dryland cattle range, damage to timber resources and associated wildfire damage, and diminution of water-based recreational and tourism activities, rather than by shortages of developed water supplies.

Southern California experienced generally dry conditions from 1999-2002, ending with the 2002 precipitation year (measured from July 2001 to June 2002) as the driest on the southern coast to that point . Year 2007 again set a new record for a single dry year in the southern coastal region. Massive wildfires caused by these dry conditions occurred in 2003 and again in 2007 and 2008.

Drought Actions

Though one winter of heavy precipitation could bring water supplies to normal levels, California's complex water supply issues will remain. Increased water needs for environmental purposes, regulatory cutbacks on water supply and population growth, have created much more serious water problems than the state faced in the early 1990s. In the future, the impacts of climate change will complicate California's water supply difficulties even further. In response to these issues, Governor Schwarzenegger and Senator Dianne Feinstein have proposed a bi-partisan plan to update California's water system by increasing storage, improving conveyance, protecting the Delta's ecosystem and promoting greater water conservation. While much of the plan will take time to implement, state and local leaders are taking steps to encourage and, in some communities, require an immediate reduction in water use.

Additional drought information can be found at www.water.ca.gov/drought.